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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : H04L — A2

(11) International Publication Number: **WO 97/34388**

(43) International Publication Date: 18 September 1997 (18.09.97)

(21) International Application Number: PCT/US97/03833

(22) International Filing Date: 12 March 1997 (12.03.97)

(30) Priority Data:
08/614,439 12 March 1996 (12.03.96) US

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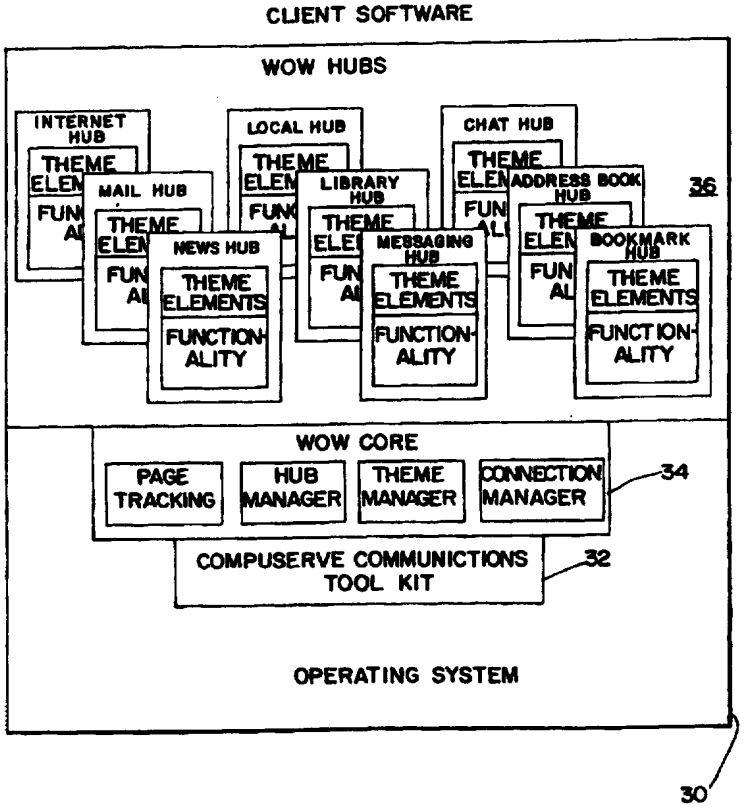
(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
Without international search report and to be republished upon receipt of that report.

(54) Title: SYSTEM FOR DEVELOPING USER INTERFACE THEMES

(57) Abstract

A system is disclosed for tailoring a computer information service user interface to meet the needs and interests of a portion of the subscriber base. A user interface framework based on simplicity, consistency, and uniformity across all screens is defined. Using the user interface model, display characteristics may be defined in accordance with a theme such as for children subscribers of the information service. Display characteristics are embodied in a dynamic linked library so that a theme may be selected when a subscriber initiates a session with the information service.



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SYSTEM FOR DEVELOPING USER INTERFACE THEMES

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates generally to human-computer interaction. In particular, the present invention relates to a system and method for defining themes based on a common user interface model for interacting with a computer information service.

Description of the Related Art

Computer information services today offer a variety of services to their subscribers. For example, subscribers of the CompuServe® Information Service may retrieve information from a repository maintained by the service or possibly, by a third party provider. In addition, CompuServe subscribers may communicate with other subscribers. Communications may occur in real time as subscribers initiate and join ongoing "chat" sessions managed by the information service. CompuServe subscribers may also communicate directly with one another as well as with non-members via electronic mail (email.) Special interest forums within CompuServe also provide opportunities for subscribers to communicate with one another. Internet and World Wide Web access provide CompuServe subscribers with additional information sources to search and another community of computer users with which to communicate. Finally, CompuServe subscribers may perform specialized tasks such as shopping and banking online.

Computer information services today generally take advantage of graphical user interface technology in designing and implementing a user interface that allows subscribers to

access the service and perform desired tasks. A graphical user interface enables a subscriber to interact with the information service by operating a computer mouse or trackball to select pictorial representations of information items or tasks. For example, a subscriber may select a "Shopping" button to enter an online shopping mall or a "Home/Leisure" button to locate information about a favorite hobby. Alternatively, a subscriber may select a menu item or series of items to accomplish a specific task. For example, a subscriber may select the menu item "Read mail" in order to read any new email messages. In general, combinations of buttons and menu items are presented to subscribers to assist them in "navigating" to a particular area or destination. Subscribers navigate to an area of the information service in which they may accomplish a specific goal such as locating needed information or performing a desired task.

Alternatively, subscribers may choose to access online services using communication software that was not designed for accessing any particular online service. For example, a subscriber may choose to use a terminal emulation package for accessing a service. Tasks are accomplished by selecting items from menus or typing in commands. Although adequate, such user interfaces have fewer visually appealing characteristics and in general, are more difficult to use than graphical user interfaces, especially those developed by the service provider. Furthermore, as information and services are added, the menus become more complex and subscribers must traverse through more of them to find specific items. If subscribers do not know the location of a particular item, they are forced to search through all the menus, possibly at a number of levels, in order to locate the desired item.

Although the advent of the graphical user interface has made computers easier to use, subscribers to online services still experience difficulties in navigating the system.

Traditionally, online services have customized their user interfaces for interactions with their own services, but they have not tailored their user interfaces to the specific needs and interests of their subscriber base. Novice, intermediate, and advanced subscribers are expected to use the same user interface even though their levels of expertise differ. In addition, children, adults, teenagers, and senior citizens are expected to use the same interface even though their interests differ.

The primary reason that subscribers have so few options is that the design and development of user interface code is a time-consuming and expensive process. Rather than address the varying needs and interests of their subscriber population, online services have attempted to create a single user interface that incorporates every feature a subscriber may want. Some subscribers may find the resulting user interface cumbersome and difficult to use. For the online service, the creation of user interfaces with tailored feature sets may require the design and implementation of separate applications for each target audience. The development of new user interfaces or the addition of new features requires coding and recompilation.

SUMMARY OF THE INVENTION

Subscribers of computer information services today have a need for user interfaces tailored to their needs and interests. The present invention overcomes the problems and disadvantages of providing subscribers of computer information services with a single user interface for interacting with and navigating the system. The present invention is a system and method for developing multiple "themes" tailored to the needs and interests of a portion of a subscriber base. The present invention facilitates the development of themes by defining

a user interface framework that introduces consistency and uniformity across the screens and yet allows for great flexibility in appearance of the screens. The present invention defines a convention for specifying a theme that may then be implemented as dynamically linked libraries. The conventions of the present invention allow themes to be designed and compiled independently of the underlying application code that facilitates communications between a subscriber's computer and the computers of the information service. The advantages of the present invention will be apparent from the following detailed description and accompanying claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A-1C are examples of screens for a standard theme and a children's theme in accordance with a preferred embodiment of the present invention;

Figure 2 is a system organization diagram of the major components of the client software for a preferred embodiment of the present invention;

Figure 3 is an example of a directory structure for organizing themes in accordance with a preferred embodiment of the present invention; and

Figure 4 is a computer system block diagram illustrating use of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT(S)

The following description focuses on the presently preferred embodiment of the present invention which is operative in the Microsoft® Windows® 95 environment. The present invention, however, is not limited to any particular window-based environment. The

present invention may be embodied on a variety of different platforms including Macintosh, X-Windows, NextStep and the like.

A theme in accordance with the present invention is based on a common user interface model and bundles a set of functionality and information content for a specific demographic group such as adults, kids, or teens. Alternatively, a theme may bundle a set of functionality and information content for a group of subscribers with specific interests such as entertainment, sports, financial information, etc. A subscriber to the information service selects a theme when initiating a session with the service.

The user interface framework of the present invention is designed to provide a method of navigation that allows subscribers to a computer information service to communicate their needs quickly and efficiently so the information service may assist them in accomplishing their goals. Using the present invention, subscribers—regardless of the selected theme—are never more than three (3) selections, based on a topic, subtopic, and action, away from a customized content area in which specific goals may be accomplished. Preferably, the three selections may be made in one of several ways. With the exception of being tailored according to subscribers' first three selections and selected theme, all customized content areas have similar appearances and behavioral characteristics in accordance with the user interface framework of the present invention.

All screens that comprise the various themes are based on common elements such as a background and a set of controls. Preferably, all controls in themes designed in accordance with the user interface framework are configurable so that properties associated with the controls may change for different themes. In general, controls are rectangular selectable regions some of which are graphic-filled objects or simple round, rounded square, or

rectangular buttons labeled with text. In a preferred embodiment of the present invention, configurable controls include: text boxes, static text, static images, buttons, sounds, list boxes, and marquees. Regardless of the focus of the theme, the screens that comprise the theme contain colorful and appealing artwork. Navigation is accomplished, preferably, using single clicks of a mouse button. Furthermore, a single left button click or multiple left button clicks may be used to make a selection.

Referring to Figure 1A, a Login Screen 10, 12 in accordance with a preferred embodiment of the present invention is shown. The subscriber may select a theme such as standard 10 or a children's theme 12 when initiating a session with the online service. Also shown in Figure 1A is a standard Home Screen 14 and a Home Screen for children 16 in accordance with a preferred embodiment of the present invention. The standard Home screen presents options for the tasks that adult subscribers are most likely to want to perform—learning about new features of the service (What's New), reading email (My Mail), reading news (My News), traversing to bookmarked locations (My Places), or traversing to the topics/actions screen (Main Menu) to locate a customized content area. In addition, subscribers are given options to access a filing cabinet (Storage), to access modem/user session settings (Settings), or to exit to return to the operating system desktop (Quit). Preferably, on all subsequent screens, subscribers are given the option of returning to this Home Screen by selecting a "Home" button.

The children's theme Home Screen 16 presents some of the same options as the adult theme (What's New, Main Menu, My Mail) and includes some different options (My Stuff, My Shortcuts). The children's theme 16 also uses graphics directed at children rather than the artwork of the standard theme which is more appealing to adults.

Referring to Figure 1B, a preferred embodiment of a Main Menu screen (topics/actions screen) in accordance with a standard theme is shown 18. Subscribers may choose one of the four (4) topics as represented by the controls Entertainment, Living, Sports, Money or one of six (6) actions as represented by the controls Chat, Reference, Messaging, News, Internet, or Shopping. As shown in Figure 1B, topic options are clearly identifiable and are given display characteristics that distinguish them from the action options. Action options are represented as round buttons at the bottom of the Main Menu screen while topics are large rectangular areas. In addition, actions appear in one row while topics are organized in a separate row. Finally, each action option is assigned a distinctive color. The visual cues used in the screens help subscribers to quickly differentiate between topics and actions so that they are more likely to make meaningful choices that lead them to the desired customized content areas. In another theme, topics and actions may be present, but have very different visual characteristics. In other words, the controls may be configured differently for a different theme although designed to allow the subscriber to easily and quickly locate content.

The Main Menu for the children's theme 20 contains similar options (Mail, News, Reference, Internet). However, the children's theme does not include the topics (Entertainment, Living, Sports, Money) which are more likely to be of interest to adults and therefore included on the standard theme. Instead, the children's theme includes options that are more likely to be of interest to children (Get Smart, Plugged In, Play On).

Figures 1B and 1C show preferred embodiments of News Center screens 22, 24 and Create Mail screens 26, 28 for a standard theme 22, 26 and a children's theme 24, 28. Each screen includes similar options. However, the artwork on the screen is designed to appeal to the target audience such as adults 22, 26 or children 24, 28. The standard and children

themes are merely illustrative of the types of themes that may be developed using the present invention. The present invention provides the framework for developing themes directed toward senior citizens, teenagers, young adults, etc. In addition, themes may be directed toward people of all ages who share a common interest such as entertainment, sports, etc. The themes of the present invention also allow for brand-specific customization such as a "Planet Reebok" theme that has areas for shoes, sportswear, sporting equipment, etc.

The user interface framework based on topic/action screens consisting of rectangular selectable areas is unique to the present invention. It is the unique user interface framework of the present invention that allows themes tailored to the needs and interests of the subscriber base to be developed quickly and easily without the need to modify underlying communication application code. The consistency and uniformity in the screen definitions allows each theme (a bundle of functionality and content) to be embodied in a dynamically linked library (DLL). The use of DLLs allows for the development of multiple themes that may be invoked when the subscriber is ready to initiate a session with information service.

Referring to Figure 2, a system organization diagram of the major components of the client software (i.e., subscriber communication application program) for a preferred embodiment of the present invention is shown. The software "Hubs" 36 relate, primarily, to the types of actions that may be performed in accordance with the user interface framework of the present invention. Each hub consists, preferably, of two DLLs. The first DLL encapsulates functionality for the hub. The second DLL encapsulates the user interface or theme elements (control definitions, images, sounds, etc.) The "Theme Elements" components of the hubs are completely replaceable allowing the look and feel of the application to change without affecting any of the underlying functionality. Using hubs,

functionality and content may be bundled and directed toward specific demographic groups or special interest groups in accordance with the themes of the present invention.

Content for each theme may be controlled in a number of ways. In a preferred embodiment of the present invention, content is controlled via "white lists" that outline the Internet content areas to which users of a particular theme may have access. For example, the white list for a children's theme may exclude access to some Internet newsgroups that have information regarding adult topics. A white list for a senior citizen's theme may exclude content areas with information regarding parenting of young children. In an alternative embodiment of the present invention, content may be controlled via a list of excluded areas. The use of lists for controlling content is merely illustrative of the methods that may be used in a preferred embodiment of the present invention. For example, content access to various parts of the online service may be controlled via inclusion/exclusion of content pointers from various menus that comprise the theme.

In order to provide for "plug-n-play" theme *DLLs*, a convention is established for specifying resource identifiers (IDs) consistently across the theme DLLs. A particular theme *DLL* uses the same ID mappings, regardless of the theme focus, so that an application program that facilitates communications with the information service may correctly use the theme *DLLs* interchangeably.

A theme *DLL* consists mainly of resources that determine the look and feel of the user interface. The look of the theme is determined, in part, by the placement and appearance of the controls that appear on a screen as well as background and other static images that may appear on the screen. Each control may be comprised of several images. The currently displayed image for the control may depend on the state of the control such as up, down,

disabled, etc. The feel of the theme is determined, in part, by the functionality associated with the controls and other elements of the screens. Finally, each theme may be comprised of several screens that are comprised of controls with which the subscriber interacts to communicate with the service.

In a preferred embodiment of the present invention, each theme has one common resource *DLL* that contains the resources that need to be accessed by more than one hub. Each hub also has a resource *DLL* that contains resources specific to that hub. A theme object function initializes the theme's common resource *DLL* and creates a new object (*CDynLinkLibrary*) that inserts the *DLL* name into a resource search list. The client software loads resources by first looking in the current hub's resource *DLL* and then looking in the common resource *DLL* for the theme. When the client software and *DLLs* are compiled, they include a header file containing all the *#define* statements for the resource IDs used in any theme *DLL*.

Within the user interface framework of the present invention, various types of controls are defined such as images buttons (*CImageButton*), static images objects (*CStaticImage*), static objects (*CStatic*), scroll lists (*CScrollList*), and marquees (*CMarquee*). Each control has a corresponding configuration string specified in a theme *DLL*. Preferably, a control configuration string is of the format "property1=value1; property 2=value2; ... ; propertyN=valueN". To specify a control configuration string, a string table resource entry is created with a name that describes the control. The configuration string for various instances of a particular type of control may change for different themes thus allowing for the development of new themes without the need for additional coding.

Associated with each control is a set of properties. The properties define the appearance of the control and in part, the functionality of the control. Each theme may include a different number of controls and each control appearing in a theme may have a different values for the set of properties. For example, one property of a button is an image to displayed when the button is in a particular state such as up, down, disabled, etc. The use of different images for the various button states allows the look of the theme to change as the subscriber interacts with it. Furthermore, the ability to change the property values for each button—including the images associated with each button—allows for the creation of multiple themes, each with a very different look.

A properties list for a preferred embodiment of a *CImageButton* object may be as follows:

Property	Description of Value	Example Value
Cursor	Number representing cursor ID in commonrc theme DLL.	1600
Enabled	Y if button is enabled; N if button is disabled.	Y
FaceColor	If the button is not transparent, then a 3-D button face will be drawn. This property specifies the face color for the button. The value is an unsigned long number representing the RGB value for that color.	8421504
FrameColor	If the button is not transparent, then a 3-D button face will be drawn. This property specifies the frame color for the button. The value is an unsigned long number representing the RGB value for that color.	0
HilightColor	If the button is not transparent, then a 3-D button face will be drawn. This property specifies the hilight color for the button. The value is an unsigned long number representing the RGB value for that color.	16777215
Image	File name (.bmp, .gif, .jpg, or .png) of image containing button face images. Either this property or the ImageRes property is set for the button.	exit.bmp
ImageRes	Resource name of bitmap; specify resource name or '#' followed by the integer resource ID.	ExitBMP or #258
ImageOrder	The order of the button face images contained in the button's overall image. Use one or more of the following image types and separate the names by commas. The names may be specified in any order, but they match the order of the button face images. The image face types are: UP - Button unpressed DOWN - Button pressed FLYOVER - Mouse flyover DISABLED - Button is disabled	UP,DOWN

	DEFAULT - Button is default pushbutton FOCUS - Button has input focus ON_PRESSED - 2 state button in the "on" state and currently pressed OFF_PRESSED - 2 state button in the "off" state and currently pressed	
ImageFormat	For images specified using the "Image" property, this indicates the format of the image file. Valid values are "GIF", "BMP", "JPG", "PNG", or "UNKNOWN". If "UNKNOWN" is specified or no value is specified for this property, the filename extension will be used to determine the format of the file.	GIF
SheetCols	If the "SheetIndexes" property is set, then this property must specify the number of columns in the image sheet from which the button face images will be extracted. If the "SheetIndexes" property is not set, then this property value is ignored.	4
SheetIndexes	If the images for the button are to be extracted from an image sheet, the name of the file must be specified using the "Image" property. The "SheetIndexes" property specifies a list of (zero-based) indexes which indicate which images is extracted from the image sheet matrix.	2,0,9
SheetRows	If the "SheetIndexes" property is set, then this property must specify the number of rows in the image sheet from which the button face images will be extracted. If the "SheetIndexes" property is not set, then this property value is ignored.	4
Type	If used, this value is one of the following: PUSH - push button 2STATE - two-state push button; when pushed it changes state MUTEX - MUTually EXclusive two-state button which is a member of a group of mutually exclusive two-state buttons. Each button in the group must have a sequential control ID (e.g. 100, 101, 102, etc.). Only one button will be "on" at a time. This is similar in functionality to a typical Windows radio button. If no type is specified, the type of the button will default to a push button.	MUTEX
TransparentColor	If the button's bitmap contains a color representing "transparent" pixels, then this value is the unsigned long number representing the RGB value for that color.	65280
Resize	If used, this value is one of the strings shown below. If no resize type is specified neither the button nor the image is resized. ImageToButton - to stretch the image to the button's window size when displaying the button. ButtonToImage - to size the button's window to the size of the image.	ButtonToImage
ShadowColor	If the button is not transparent, then a 3-D button face will be drawn. This property specifies the shadow color for the button. The value is an unsigned long number representing the RGB value for that color.	8421504
OnDownSound	File name of a .wav file to play for the button's On Down event.	click.wav

OnDownSoundRes	Resource name of a .wav resource to play for the button's On Down event.	CLICK
OnFlyoverSound	File name of a .wav file to play for the button's On Flyover event.	Twinkle.wav
OnFlyoverSoundRes	Resource name of a .wav resource to play for the button's On Flyover event.	TWINKLE
OnUpSound	File name of a .wav file to play for the button's On Up event.	click.wav
OnUpSoundRes	Resource name of a .wav resource to play for the button's On Up event.	CLICK
Tooltip	Text string for the button's tool tip.	Exit the program.
Transparent	Y if button window is transparent; N otherwise.	Y
URL	If used, this value represents the page name or URL associated with the button. When the button is clicked, the URL value is checked. If it is not empty, a CSI_BN_PROCESS_URL message will be sent to the button's parent window to allow it to process the URL or page name. A message handler for this message may be of the form: LRESULT OnProcessURL (WPARAM wParam, LPARAM lParam) where wParam contains the dialog control ID for the button who sent the notification message. lParam contains a LPCSTR pointer to the URL string to be processed.	x-csifap://CIS:FANS
Visible	Y if button is visible; N if button is invisible.	Y

Theme screens may also be comprised of static image objects (*CStaticImage*). Although the subscriber does not interact with the static image objects, the use of such objects as defined by their associated properties allows for the creation of multiple themes with very different appearances.

A properties list for a preferred embodiment of *CStaticImage* may be as follows:

Property	Description of Value	Example Value
Image	File name (.bmp, .gif, .jpg, or .png) of image to display. Either this property or the ImageRes property must be set for the control.	book.bmp
ImageFormat	For images specified using the "Image" property, this indicates the format of the image file. Valid values are "GIF", "BMP", "JPG", "PNG", or "UNKNOWN". If "UNKNOWN" is specified or no value is specified for this property, the filename extension is used to determine the format of the file.	GIF
ImageRes	Resource name of a bitmap in a resource DLL; specify resource name or '#' followed by the integer resource ID. Either this property or the Image property is set for the button.	BookBMP or #325
TransparentColor	If the image contains a color representing "transparent" pixels, then value of this property is the unsigned long number representing the RGB value for that color.	65280

Resize	If used, this value is one of the strings shown below. If no resize type is specified neither the control nor the image is resized. ImageToWindow - to stretch the image to the control's window size when displaying the button. WindowToImage - to size the control's window to the size of the image.	WindowToImage

Static objects (*CStatic*) may also be used in theme *DLLs*. The ability to change the associated properties supports the creation of themes with different appearances. A properties list for a preferred embodiment of a *CStatic* object follows:

Property	Description of Value	Example Value
Transparent	Y if the control window is to be transparent; N if the control is to be painted with a background color.	Y
BackgroundColor	If the control is not transparent, then the value of this property is the unsigned long number representing the RGB value for the background color of the control.	16777215
TextColor	The value of this property is the unsigned long number representing the RGB value for the text color.	32768

Scroll lists (*CScrollList*) may also be used in themes. A properties list for a scroll list may include:

Property	Description of Value	Example Value
Transparent	Y if the control window is to be transparent and all non-selected and disabled items are to be drawn with a transparent background; N if the control and all items are to be painted with a background color.	Y
BackgroundColor	If the control is not transparent, then the value of this property is the unsigned long number representing the RGB value for the background color of the control and all non-selected and disabled items.	16777215
TextColor	The value of this property is the unsigned long number representing the RGB value for the text color of non-selected items.	32768
HiliteBackgroundColor	The value of this property is the unsigned long number representing the RGB value for the background color of selected items.	32768
HiliteTextColor	The value of this property is the unsigned long number representing the RGB value for the text color of non-selected items. To determine this value, use the formula encapsulated in the RGB() macro in <wingdi.h>. e.g. RGB(0,128,0) would be the value 32768.	32768

DisabledColor	The value of this property is the unsigned long number representing the RGB value for the text color of disabled items.	32768
LinesPerItem	An integer value representing the number of physical lines that each item should have.	
IntegralHeight	Y if the scroll list is to be resized to an even number of items; N if partial items can show in the scroll list.	
MouseFlyOnlyOverText	Y if the flyover selection is to occur only when over the text of an item; N if flyover selection occurs over any portion (blank or non-blank) of an item.	

Finally, themes may include marquees (*CMarquee*). A marquee is an object containing scrolling text. A properties list for marquees may include:

Property	Description of Value	Example Value
BackgroundColor	The value of this property is the unsigned long number representing the RGB value for the background color of the control.	16777215
TextColor	The value of this property is the unsigned long number representing the RGB value for the text color.	32768
FontRes	See the FontRes definition above.	TNR_20_NORMAL
Direction	The direction the text scrolls. Can currently be either "RightToLeft" or "BottomToTop".	
Speed	The number of milliseconds between scroll events so 1, scrolling 1000 times per second, would be the fastest value possible. A value of 500 would scroll the text twice each second.	50
Delay	The number of milliseconds in between scrolling items. A delay of 3000 would cause the control to wait 3 seconds before displaying the second and subsequent items.	3000
Smoothness	The number of pixels that each scroll event moves the text. The higher this number the less smooth the scrolling will appear. A higher number also speeds up the text.	5
Cycle	This value specifies the behavior of the list of text items. A value of "Continuous", this is default, cycles the text items infinitely. "Once" scrolls the list of items and then stops. "None" indicates that no scrolling is to occur.	Once

Preferably, all cursors are defined as resources in the theme *DLL*. In addition, the name of a backdrop image for a view may be defined using a string resource table entry. The ability to change the backdrop image supports the creation of multiple themes with different

appearances. Because all static text is language specific, it is, preferably, stored as resource string table entries within the theme *DLL*.

To facilitate the interchange of themes when initiating sessions with the information service, each theme, preferably, has a theme name and a corresponding theme directory name. For example, a theme named "USA Standard" might have a corresponding directory named "USASTD." The theme directory is a directory under the user interface product's THEMES directory. A sample directory structure is shown in Figure 3. All files are stored under the top level directory *c:\uiprod* 40. Each theme also has subdirectories for animates 42 and sounds 44 for theme files not included in a *DLL*.

The client software manages information about the current theme in use by the application in the *m_theme* member variable of a top-level application object. A *Load( )* function uses the theme name passed to it to look up information in the application's entry in the Windows Registry database. Each theme may have a section in the Registry database to specify information about that theme. The naming convention for the registry key is preferably, the theme name.

A load function reads in the theme registry settings and then uses a *LoadLibrary( )* function to load the common resource *DLL*. From the *DLL*, it loads the default configuration strings for the controls. To unload a theme DLL, the theme object's *Unload( )* function is called.

Figure 4 is a computer system block diagram that illustrates use of the present invention to communicate with an information service. The information service may be viewed as a wide area network 104—with a communication link to the Internet 110—consisting of node computers 106 that manage network traffic and host computers 108 with

which subscribers connect in order to take advantage of the services offered. Preferably, the present invention is embodied in an application program and DLL on a subscriber's computer 100. The application program provides the underlying user interface functionality and manages the connection with the information service. Following selection of a theme, the *DLL* for the selected theme is loaded. The subscriber's computer 100 establishes a connection 102 to a host computer 108 through a network node computer 106 using, for example, a modem or a cable. The network node 106 routes communications between the subscriber's computer and the information service host computer that provides the needed functionality. Host computers assist subscribers in completing tasks such as retrieving information and sending messages to other subscribers.

The present invention recognizes that subscribers to online services have only one user interface option for interacting with a computer information system—the user interface developed by the service provider. Such user interfaces contain features and functionality directed to subscribers with all levels of expertise and interest. The present invention recognizes that subscribers of online services have varying levels of expertise and different interests. The present invention also recognizes that all subscribers may benefit from a user interface that is easy to use and presents consistency and uniformity across all screens. The user interface model of the present invention defines a consistent and uniform user interface framework well suited for all subscribers. The framework then facilitates the development of themes that may be directed to specific demographic groups and special interest groups. Using the present invention, an online service may be made more accessible and appealing to a wider subscriber base.

The present invention is described in detail with specific reference to a single preferred embodiment and certain alternatives. However, there is no intent to limit the invention to the particular embodiment of specific alternatives. The true scope and spirit of the present invention is defined by the following claims.

WHAT IS CLAIMED IS:

1. A method for tailoring display characteristics of the screens a user interface, comprising the steps of:

(a) defining a set of user interface elements for use on each of said screens;

(b) defining properties for each of said user interface elements;

(c) associating said properties with resource identifiers; and

(d) creating a client application program, said client application program capable of accessing said resource identifiers and managing said screens in accordance with said properties associated with said resource identifiers.

2. The method of claim 1, wherein said user interface elements are rectangular selectable regions.

3. The method of claim 1, wherein said resource identifiers are stored in a dynamically linked library loaded by said application program at runtime.

4. The method of claim 1, wherein said properties include appearance characteristics of said user interface elements.

5. The method of claim 1, wherein said properties include behavioral characteristics of said user interface elements.

6. The method of claim 1, wherein said resource identifiers are unique with respect to other resource identifiers used by said application program.

7. An information service user interface system, said system comprising:

a first theme for interacting with said information service;

a second theme for interacting with said information service; and

an application program capable of managing screens associated with said first theme or said second theme.

8. The system of claim 7, wherein said first theme and said second theme are comprised of multiple screens.

9. The system of claim 8, wherein said multiple screens are comprised of rectangular selectable regions.

10. The system of claim 9, wherein said rectangular selectable regions relate to topics, subtopics, or actions.

11. The system of claim 7, wherein said first theme and said second theme are implemented as dynamically linked libraries containing resource identifiers.

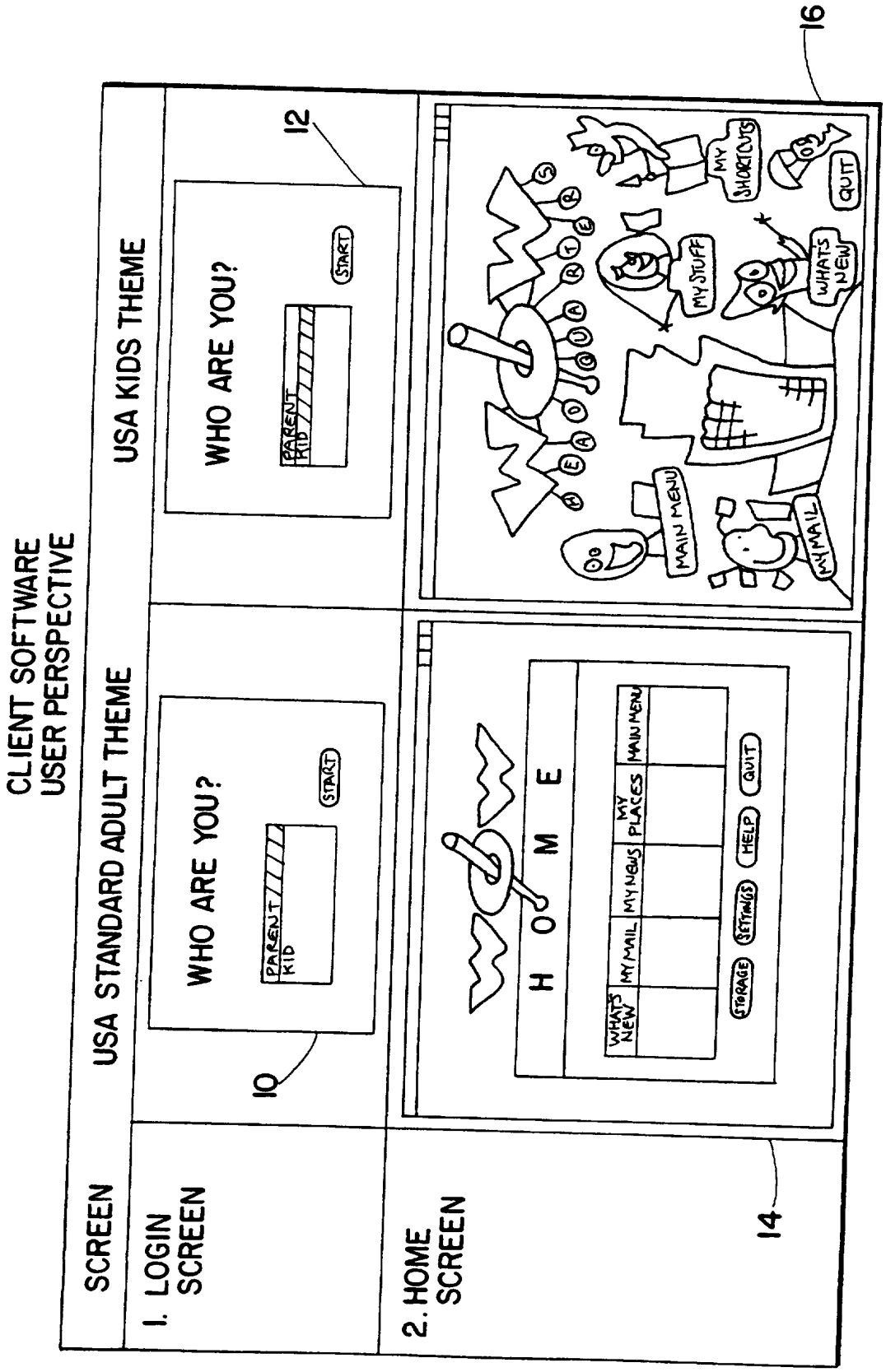
CLIENT SOFTWARE
USER PERSPECTIVE
SCREEN
USA STANDARD ADULT THEME
USA KIDS THEME
1. LOGIN SCREEN
2. HOME SCREEN
WHO ARE YOU?
PARENT
KID
START
10
12
14
16
HOME
WHAT'S NEW
MY MAIL
MY NEWS
MY PLACES
MAIN MENU
STORAGE
SETTINGS
HELP
QUIT
MAIN MENU
MY MAIL
MY STUFF
WHAT'S NEW
MY SHORTCUTS
QUIT

Fig. 1A

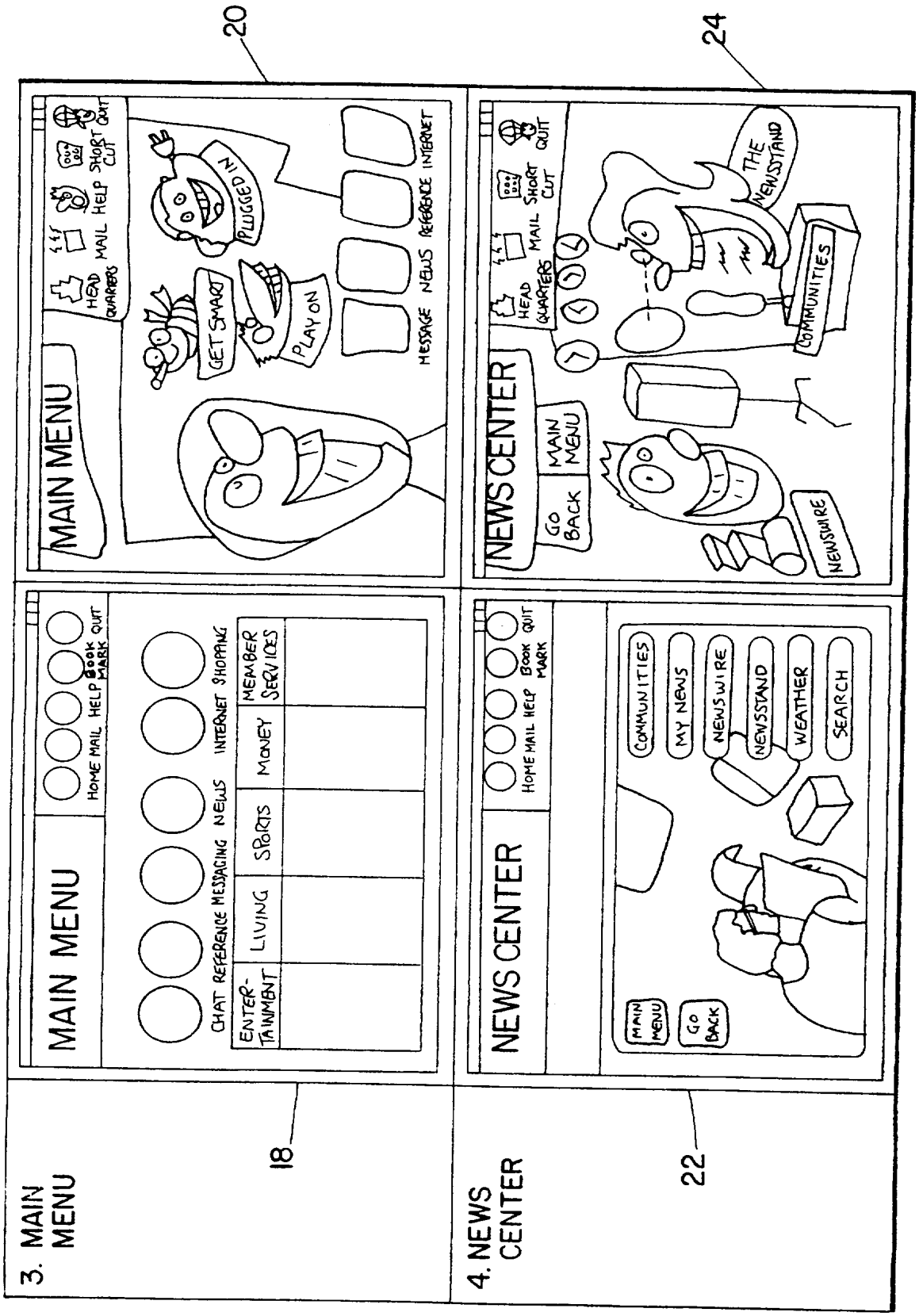
3. MAIN MENU
MAIN MENU
HOME MAIL HELP BOOK MARK QUIT
CHAT REFERENCE MESSAGING NEWS INTERNET SHOPPING
ENTER-TAINMENT
LIVING
SPORTS
MONEY
MEMBER SERVICES
18
4. NEWS CENTER
NEWS CENTER
HOME MAIL HELP BOOK MARK QUIT
MAIN MENU
GO BACK
COMMUNITIES
MY NEWS
NEWSWIRE
NEWSSTAND
WEATHER
SEARCH
22
20
MAIN MENU
HEAD QUARTERS
MAIL HELP SHORT CUT QUIT
GET SMART
PLUGGED IN
PLAY ON
MESSAGE NEWS REFERENCE INTERNET
24
NEWS CENTER
HEAD QUARTERS
MAIL SHORT CUT QUIT
GO BACK
MAIN MENU
THE NEWSSTAND
COMMUNITIES
NEWSWIRE

Fig. 1B

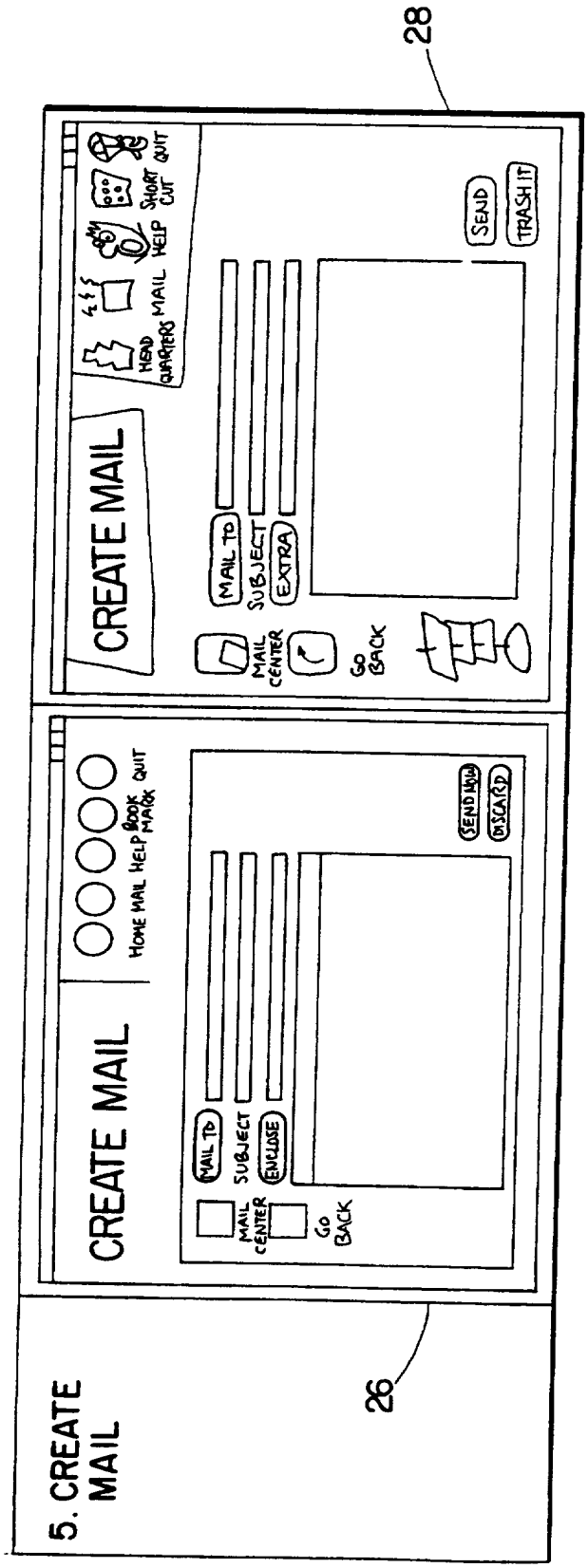
28
CREATE MAIL
HEAD QUARTERS
MAIL
HELP
SHORT CUT
QUIT
MAIL TO
SUBJECT
EXTRA
SEND
TRASH IT
MAIL CENTER
GO BACK
CREATE MAIL
HOME MAIL HELP
BOOK MARK
QUIT
MAIL TO
SUBJECT
ENCLOSE
SEND NOW
DISCARD
MAIL CENTER
GO BACK
26
5. CREATE MAIL

Fig. 1C

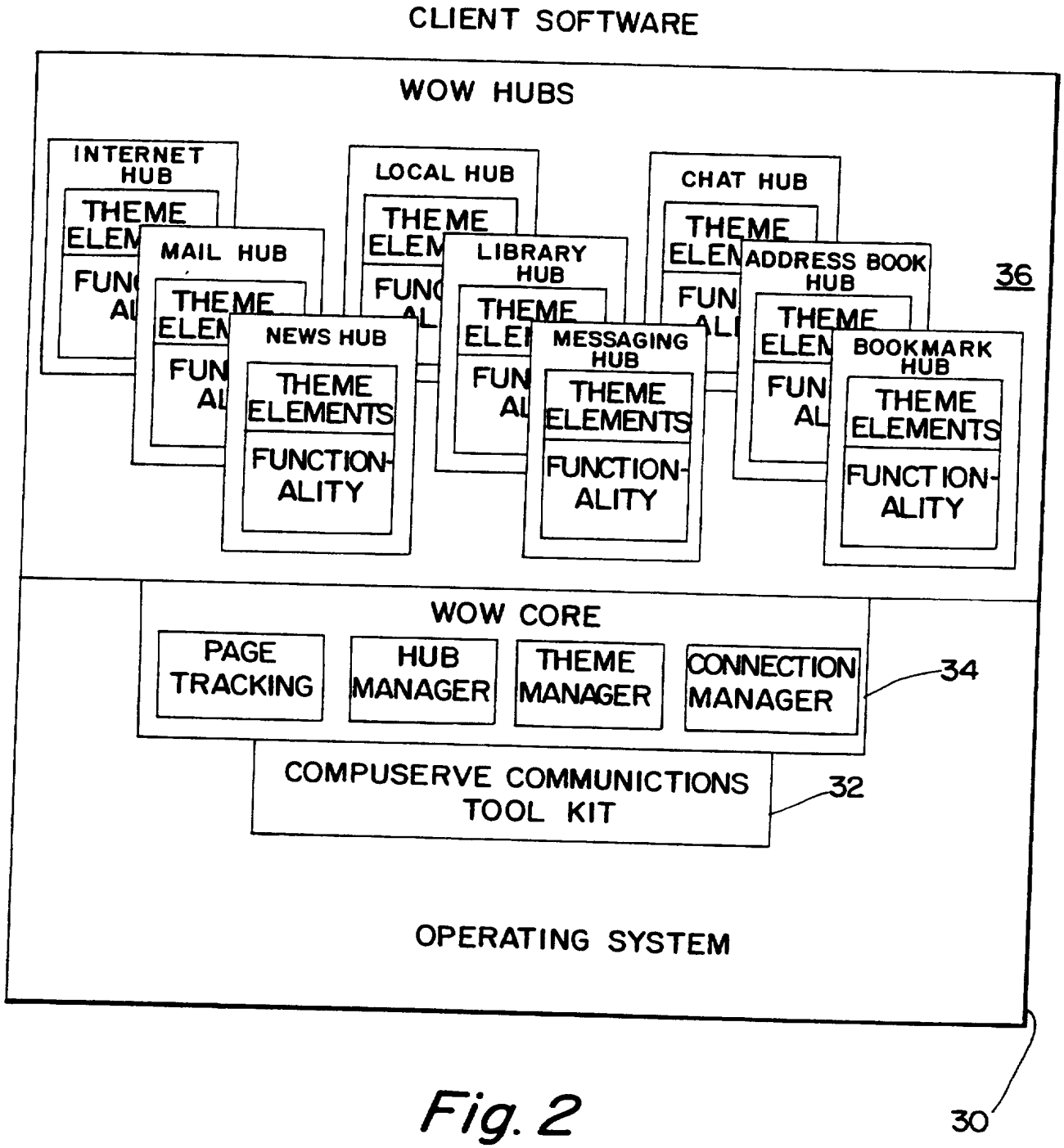
CLIENT SOFTWARE
WOW HUBS
INTERNET HUB
THEME ELEM
FUNC AL
MAIL HUB
THEME ELEM
FUN AL
LOCAL HUB
THEME ELEM
FUNC AL
LIBRARY HUB
THEME ELE
FUN AL
CHAT HUB
THEME ELEM
FUN AL
ADDRESS BOOK HUB
THEME ELEM
FUN AL
BOOKMARK HUB
THEME ELEMENTS
FUNCTION-ALITY
NEWS HUB
THEME ELEMENTS
FUNCTION-ALITY
MESSAGING HUB
THEME ELEMENTS
FUNCTION-ALITY
36
WOW CORE
PAGE TRACKING
HUB MANAGER
THEME MANAGER
CONNECTION MANAGER
34
COMPUSERVE COMMUNICTIONS TOOL KIT
32
OPERATING SYSTEM
30

Fig. 2

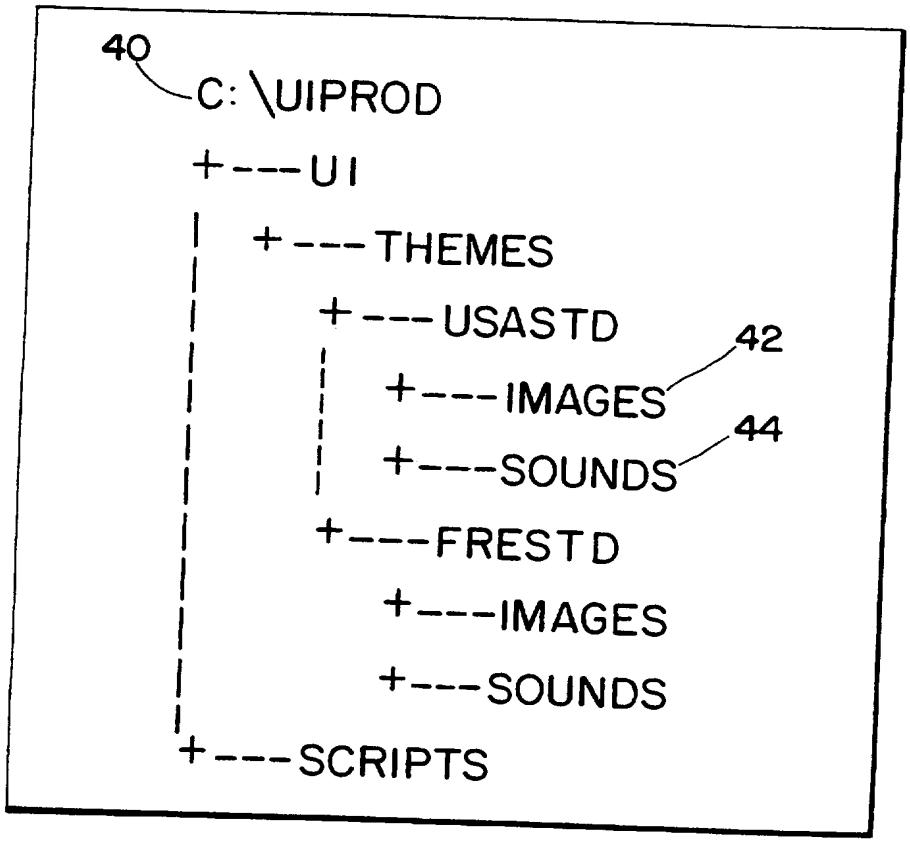
40
C: \UIPROD
+---UI
+---THEMES
+---USASTD
42
+---IMAGES
44
+---SOUNDS
+---FRESTD
+---IMAGES
+---SOUNDS
+---SCRIPTS

Fig. 3

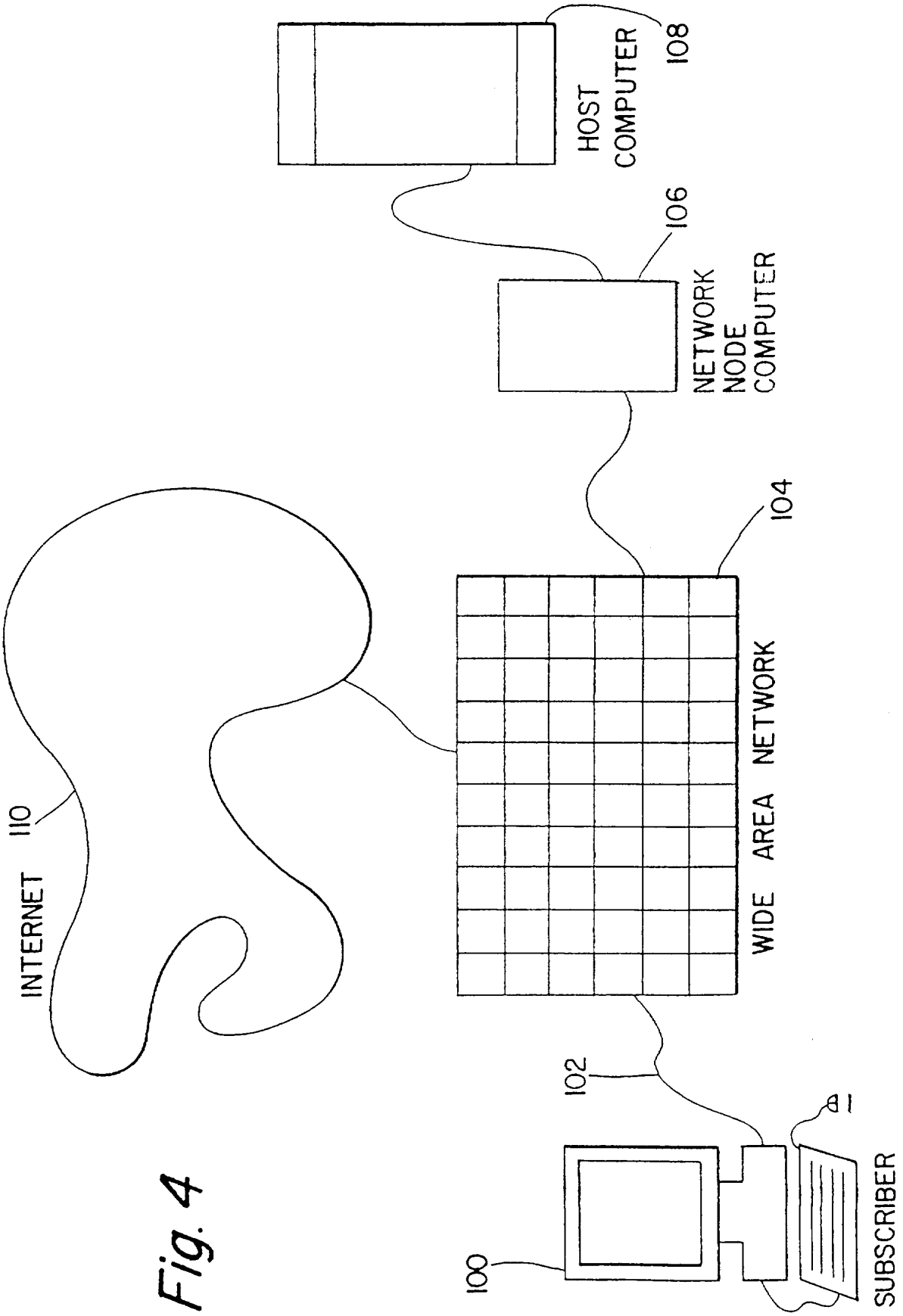
HOST COMPUTER
108
106
NETWORK NODE COMPUTER
104
WIDE AREA NETWORK
INTERNET
110
102
SUBSCRIBER
81
100

Fig. 4